REMARKS

Claims 8-9, 12, 15-16 and 19 are rejected, under 35 U.S.C. § 102(e), as being anticipated by Rodriguez et al. '013. The Applicant acknowledges and respectfully traverses the raised anticipatory rejection in view of the following remarks.

The Applicant thank the Examiner for indicating that claim 23 is allowed while claims 10, 11, 13, 14, 17, 18, 20, 21 and 22 are objected to as dependent from a rejected claim but claim 22 would be allowable if rewritten in independent form incorporating all limitations of the base claim and any intervening claims. Notwithstanding this indication, in view of the above and the following, the Applicant respectfully submits that all of the pending claims are now in a condition for allowance.

First, considering the claims as amended herein above, the Applicant carefully considered the Examiner's remarks concerning the rejected claims. In view of the same, the Applicant is retaining claim 23, which was allowed, while replacing method and apparatus claims 8-22 with new method and apparatus claims 24-34. It will be noted that new claims 24-34 are directed to the same subject matter as claims 8-22 and do not add any new matter and are entirely based on the specification and drawings as original filed and search. In essence, new claims 24-34 only restate the subject matter of claims 8-22 with a more explicit recitation of the presently claimed invention.

Next, considering the present invention as recited in claim 23 and new claims 24-34, the present invention is directed to a method and a device for diagnosing a machine, such as a transmission, by analysis of oil flowing within the machine to detect ferritic wear particles accumulated within the oil.

According to the present invention, a magnetic flux sensor, such as a reed contact, is located in a first region of an oil duct of the machine and a capturing magnet is located in a second region of the oil duct such that the capturing magnet produces a magnetic flux density in a cross-section of the oil duct that includes the first region and such that an initial magnetic

flux density in the first region is sufficient to hold the magnetic flux sensor in a first state. Thereafter, ferritic wear particles carried in the oil will accumulate on the capturing magnetic and the magnetic flux density in the first region will change with the accumulation of the ferritic wear particles on the capturing magnet. When the accumulation of ferritic wear particles on the capturing magnetic exceeds a certain amount, the resulting change in the magnetic flux density in the first region will cause the magnetic flux sensor to change from the first state to a second state. The state change of the magnetic flux sensor may be used, for example, to indicate when servicing of the machine is in needed.

Next considering the prior art cited by the Examiner in rejection of the claims, Rodriguez et al. '013 describes a sensor for detecting ferromagnetic particles in oil in a machine housing wherein two electromagnets are mounted in the housing so as to capture and suspend ferromagnetic particles on or near the face of a mass sensitive surface acoustic wave (SAW) sensor. As is well known, and as described by Rodriguez et al. '013, the frequency characteristics of a mass sensitive SAW will change depending upon the mass loading on the face of the SAW wherein, in this instance, the mass loading results from the oil and ferromagnetic particles suspended in the oil on or near the face of the SAW.

It must first be noted that in the Rodriguez et al. '013 sensor, two electromagnets are required because the particles are not captured by the electromagnets themselves. Instead, the two electromagnets are used to generate a magnetic field to draw and capture the particles in a volume of oil on or adjacent to the SAW.

In fundamental contrast to the role of the electromagnets in Rodriguez et al. '013, the functions of the capture magnetic of the present invention are, first, to generate a magnetic flux field around the magnetic flux sensor and, second, to capture and hold the particles on the face of the magnet so that the accumulation of particles will change the magnetic field over time. In complete contrast from the Rodriguez et al. '013 sensor, the method and device of the present invention requires only a single magnet, and it need not be an electromagnet, and

the capture magnet performs entirely different functions from those performed by the Rodriguez et al. '013 electromagnets.

In even more fundamental contrast between the present invention and Rodriguez et al. '013, the method and device of the present invention employs a magnetic field, a magnetic flux sensor and the magnetic properties of the particles to detect the amount of particles present in the oil. That is, the method and device of the present invention are entirely magnetic in operation.

In complete contrast from the present invention, the Rodriguez et al. '013 sensor uses the magnetic properties of the particles only to allow the electromagnets to trap the particles in a given volume of space against the face of the SAW. The SAW does not and cannot sense, in any way, the magnetic properties of the particles, but instead attempts to sense only the mass of the particles trapped in the defined volume of fluid.

It is, therefore, apparent that the present invention employs an entirely different principle of operation than does the Rodriguez et al. '013 sensor, and that difference is clearly reflected in the fundamental differences between the structures and operations of the two devices. It is, therefore, the belief and position of the Applicant that the present invention is fully and patentably distinguished over and from the teachings of Rodriguez et al. '013 under the requirements and provisions of 35 U.S.C. § 102 and 35 U.S.C. § 103. The Applicant, therefore, respectfully requests that the Examiner reconsider and withdraw all objections to or rejections of the claims, and the allow the claims as amended herein above.

If any further amendment to this application is believed necessary to advance prosecution and place this case in allowable form, the Examiner is courteously solicited to contact the undersigned representative of the Applicant to discuss the same.

In view of the above amendments and remarks, it is respectfully submitted that all of the raised rejection(s) should be withdrawn at this time. If the Examiner disagrees with the Applicant's view concerning the withdrawal of the outstanding rejection(s) or applicability of the

Rodriguez et al. '013 reference, the Applicant respectfully requests the Examiner to indicate the specific passage or passages, or the drawing or drawings, which contain the necessary teaching, suggestion and/or disclosure required by case law. As such teaching, suggestion and/or disclosure is not present in the applied references, the raised rejection should be withdrawn at this time. Alternatively, if the Examiner is relying on his/her expertise in this field, the Applicant respectfully requests the Examiner to enter an affidavit substantiating the Examiner's position so that suitable contradictory evidence can be entered in this case by the Applicant.

In view of the foregoing, it is respectfully submitted that the raised rejection(s) should be withdrawn and this application is now placed in a condition for allowance. Action to that end, in the form of an early Notice of Allowance, is courteously solicited by the Applicant at this time.

The Applicant respectfully requests that any outstanding objection(s) or requirement(s), as to the form of this application, be held in abeyance until allowable subject matter is indicated for this case.

In the event that there are any fee deficiencies or additional fees are payable, please charge the same or credit any overpayment to our Deposit Account (Account No. 04-0213).

Respectfully submitted,

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